



Dworshak Fisheries Complex

Monthly Activity Report



November Highlights

Dworshak

SST BY16 - 2,447,436
SCS BY16 - 2,773,157
COS BY 16 - 1,197,500
SCS BY15 - 1,509,772
COS BY 15 - 288,584

Kooskia

BY 16 Chinook - 782,512
BY 15 Chinook - 693,101

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U.S. Fish & Wildlife Service, Region 1

Managers Message - Steve Rodgers

For some reason, when fall begins, I find myself appreciating how blessed I am to live and work here in beautiful Idaho with all of you. This month, I'm going to focus on how fortunate we are, as I've done before. It's a good reminder for me and hopefully you as well that we are lucky human beings.

Sometimes we lose sight of just how lucky we are. We live in this pristine area, with limited stressors that other people have to deal with. Stressors like traffic and the noisy hustle and bustle of big cities. We don't live in poverty; or the violence of a war-torn country; or without basic services like clean drinking water, schools for our children, the right to vote, medicine and doctors, etc. Are we lucky? Yes...I think so.

We are very much connected to nature in our work, through the fish we all love. Our jobs are actually stress-relieving, being outside working on behalf of the resource. We are fortunate to have these great jobs, are we not?

We are also fortunate when compared to our neighbors in the county. The lowest paid position within Dworshak Complex makes around \$26,000/year at the lowest step within the range of that position. That is fairly close to the median household income for Clearwater County. That means a new employee at entry-level wages can make about as much as the average family brings home in town. Furthermore, Clearwater County has the second highest unemployment rate in Idaho at over 12%. Just having a job here is a blessing. What's the stress level for folks without a paycheck?

When compared to world standards, we are even more blessed. According to a variety of sources, the median household income

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worldwide is estimated at \$1,200-\$10,000 per year. That means the income of even an entry level position within the Complex is at least 2.5 times greater than the household global average. According to one economist, if you make \$34,000 or more this year, you are part of the richest 1% of people on earth! Think about that for a minute.

This incredible statistic reminds me of just how lucky I am. I have a wonderful job, and am very well compensated for it. I do that job in an incredibly beautiful part of wonderful Idaho. And despite all its flaws, I get to do that job in what is still the greatest country on earth. I am blessed, as are we all that live and work here.

I hope you enjoy this fall, a great time of year in the Pacific Northwest. Please take a moment to think about how fortunate you are. And the next time things don't go your way here at work or at home, remember what the t-shirt says: "life is good".



Credit: Olson FWS

Dan measured dissolved oxygen which dropped to 3.5ppm in the raceways. We were moments away from releasing all the SCS into the river during an electrical emergency.



Credit: Olson, FWS

Water flows were reduced during the installation of a portable electrical substation.



Credit: Olson, FWS

All eggs were enumerated this month. Survival and fecundity both exceeded our five year average leading to a surplus of approximately 175,000 eggs.

Dworshak Hatchery Production - Izbicki, Sommer, Bisbee

Dworshak Stock - Spring Chinook Salmon (SCS)

Brood Year 2015 (BY15)

By the end of the month there were 1,509,772 BY 15 SCS fry in 10 raceways and 10 Burrow's Ponds. Fry averaged 41.7 FPP (fish per pound). All Dworshak SCS were being fed BioOlympic Fry 1.5mm. Due to the electrical emergency and in an effort to reduce water usage, 20 of the 30 SCS raceways were move into 10 Burrow's Ponds in System 3 on 11/14-15/2016. Mortality appeared above average for the month however, 5,566 of the 9,253 mortalities were a result of the power outage. Dissolved Oxygen dropped to 3.5ppm in the raceways and we were moments away from releasing all the SCS into the river. Fish appear to have recovered well from the extreme stress, but hatchery staff are keeping a close eye on the fish for any residual effects. Overall, the Chinook are looking good. There are still slight signs of *Phoma herbarum*, but only in the ponds that were the worst hit.

Brood Year 2016 (BY16)

Brood year 2016 eggs continued to incubate on chilled water in November. As of the end of the month eggs were on chilled water at an average of 37 degrees. Eggs are treated with a formalin drip 3 times weekly and will continue to be treated until just prior to hatching. Eggs will begin hatching at the end of December. All eggs were enumerated this month. Survival and fecundity both exceeded our five year average leading to a surplus of approximately 175,000 eggs. These eggs will be out-planted in early December pending co-manager approval. We currently have 2,773,157 eyed eggs on station.

Coho Salmon (COS)

Brood Year 2015 (BY 15)

No report submitted for November.

Brood Year 2016

No report submitted for November.

Dworshak Stock- Summer Steelhead (SST)

Brood Year 2016 (BY 16)

At the end of November, there were 2,447,436 fry from takes 1-10 in System 1, 2, & 3 averaging 13.0 fpp. Mortality in the Systems was 0.25%.

Takes 1-9 were on demand feeders being fed Skretting Classic Trout 2.5 or 3.5mm. Takes 10 was slowly moved to demand feeders and by November 11th all of Take 10 were feeding completely by demand feeders. We continued to fight diseases in the BY16 SST this month. BP's 18, 21, 23, & 25 were diagnosed with low-level chronic IHNV. The mortality has been at a chronic low level of about 15-40 fish a day. These ponds are being kept isolated from the rest of the ponds and strict biosecurity measures are being followed. On 11/09/16 BP 9 was diagnosed with bacterial gill disease and was treated with Chloramine-T for 3 days. We started seeing *Trichodina* in some of the BP's in November. BP 18 was treated with formalin on 11/01. Overall, the steelhead are doing well and are on track to make size at release.

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Dworshak Hatchery Production

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Dworshak Stock- Summer Steelhead (SST)***Brood Year 2017 (BY17)***

Brood Year 2017 SST collections have begun!! Our early SST broodstock goals are 400 ponded adults. These fish will be collected over three months with 150 fish being ponded in October, 150 adults being ponded in November, and 100 adults being ponded in December. To meet the November broodstock goal, the fish ladder was opened on November 1 to collect early returning adults for BY17 broodstock. The ladder was open for approximately 6 hours and trapped 667 fish. Fish were sorted by FWCO and Hatchery staff on 11/4/16. See Table 1 for the trapping summary. Broodstock goals for November were 150 adults ponded. All CWT fish were ponded. We kept females 75cm or greater again this season. All trapped fish received a left opercle V-notch. Surplus fish were outplanted at the Hocus boat ramp. Adult broodstock are being with formalin treated three times per week to control fungal growth.

Table 1. BY17 SST Trapping Summary, November 2016.

	SST		Coho		
	M	F	M	F	
Total	259	392	10	6	
Ponded	108	71	10	6	
Outplanted	151	321	0	0	
Ladder Count	708	Sorted Count	667	% Accuracy	94

SUMMARY

Table 2. Total Production - Fish on Station November 30,2016.

SP	BY	Location	Number	Wt (lbs)	FPP	L in	L mm
SCS BY 16	16	Incubation (Eggs)	2,773,157				
SCS BY 15	15	Raceways	1,509,772	36,187	42	4.3	109
SST BY 16	16	Systems	2,447,436	213,710	13	6.2	157
COS BY 16	16	Incubation (Eggs)	1,197,500				
COS BY 15	15	System III	288,584	4,550	70	3.5	88
Total Fish/Fry on Station EOM			8,216,449	254,447			

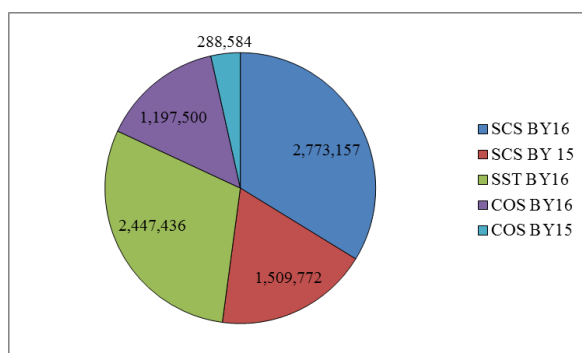


Figure 1. November 30, 2016 Total Fish/Eggs on Station.



The 2016 Combined Federal Campaign annual chili cook-off was held on November 10.



Credit: Olson, FWS

By popular vote the 2016 to 2017 Chili Champion is Steve Rodgers!



Dworshak NFH Meetings, Training and Conferences - Drobish

On November 5th, the Dworshak Fisheries Complex experienced a power outage resulting from a failed transformer at the local substation in Ahsahka, Idaho. The complete outage continued until early Sunday morning at which time Clearwater Power was able to provide partial power to the main pump house using a residential feed. The residential feed was maintained in use until the afternoon of November 18th at which time commercial power was restored following installation of a portable substation leased to Clearwater Power Company from Bonneville Power Administration. In addition to the residential feed, 2 main river pumps operated on Generator 4 Diesel power for this 12-13 day commercial outage. Generator 2 also provided power to the System I pump house (i.e. pump #1, vacuum degassers), the main hatchery building, Idaho Fish Health Center and the Idaho Fish and Wildlife Conservation Office.

Associated with the initial power outage prior to the residential feed connection, approximately 5,500 spring Chinook salmon juveniles were lost as a result of low oxygen levels. No other mortalities occurred in association with the power outage. The key to the minimal fish losses are attributable to the Hatchery and the Clearwater Power staffs pulling together in poised fashion to restore water flows. Bonneville Power promptly located portable sub-station for Clearwater Power to restore full power in 12 days rather than several months as would have been the case if the portable substation wasn't available.

As a result of the outage, several procedural and mechanical items have been identified. Hatchery staff along with the Corps of Engineers, Electrical Engineering staff will meet in December to identify critical mechanical items to be replaced and develop solid procedures for emergency power situations and returning from power outage status back to commercial power status.

DNFH Maintenance and Operations Activity Report - Koehler

- Several attempts have been made by the electrical contractor to remove several shorted 480 volt leads from its conduit. It looks like there are serious problem somewhere along the conduit run that will not provide the opportunity to reuse the existing conduit for new wire. More to come!
- We have been working through Statements of work for all of our annual preventative maintenance contracts and are writing them up with additional 4 year options.
- Electrical shop is continued installing the new fish friendly, LED lighting in the nursery. To be completed by the end of Jan. 2017.
- We are continuing to work toward improving safe work practices and providing the proper and required PPE for our maintenance staff.
- Maintenance has completed 35 PM work orders and 15 written requests from hatchery staff for the month of November, 2016

Idaho Fish and Wildlife Conservation Office - Connor (for Project Leader)**Project Leader**

Traveled to Boise and met separately with LSRCF personnel and the IDFG Fish Research Manager, IDFG Resident Fish Manager, and IDFG Hatchery and Harvest Coordinator.

Traveled to Hagerman NFH and met with manager Craig Eaton, followed by a meeting with Jody Brostrom in Salmon.

Attended meetings with the Dworshak Complex Monitoring and Evaluation Team.

Dworshak Complex Monitoring and Evaluation Team

FWCO staff met with the Dworshak NFH production and Fish Health staff to develop a recommendation whether to continue using Erythromycin injections for adult female spring Chinook salmon. Other issues discussed included scheduling a steelhead pre-spawning coordination meeting and upcoming Clearwater AOP assignments for 2016 and 2017.

Began updating the Broodstock Calculator for BY17 SCS. Data will be used to determine the number of SCS needed in trap to fulfil BY17 SCS spawning requirements.

Reviewed the draft study plan: Evaluating comparative PIT tag loss of steelhead reared in reuse aquaculture systems (RAS) or traditional raceways at Hagerman National Fish Hatchery

Attended Hagerman HET meeting in Boise. Discussed changes in nursery rearing protocols for steelhead and plans for evaluating PIT tag losses in steelhead reared in circular tanks compared to raceways. Reviewed a statement of work in preparation for Abernathy to conduct proximate analysis of steelhead reared in circular tanks as a method for evaluating their condition relative to smoltification.

Input BY17 Steelhead sort data into the FINS database.

Worked on broodstock calculator Excel document for BY17 spring Chinook salmon.

Participated in BY17 steelhead pre-spawning coordination meeting, and set the agenda for next week's spawning coordination meeting.

Input CWT and PIT tag numbers into the 2016 annual operation plan.

Continued to work on historical CWT return database for Dworshak NFH steelhead.

Continued to work on FY2016 spring Chinook salmon annual report.

Aquatic Conservation Team

Attended Lamprey Technical Workgroup Meeting in Portland, OR. Topics discussed included an update on the Pacific Lamprey Partnership (and need to complete a strategic plan by June 2017), the LTWG operating guidelines and Critical Uncertainties Progress Report, Subgroup updates and update on the Lamprey Initiative Policy, Conservation and Regional Implementation Plans. The Lamprey Initiative Assessment will be revised in 2017.

Coordinated with Tim Copeland from IDFG to update Pacific Lamprey distribution data into the FWS database, and to visit regarding sampling priorities and timelines.

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Idaho Fish and Wildlife Conservation Office

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Aquatic Conservation Team

Worked on FY16 NFPP Highlights for Regional Highlight Report. Including Jensen Creek project in the Caribou-Targhee National Forest, benefiting Yellowstone Cutthroat trout.

Participated in Lake Roosevelt 2016 Forum in Spokane, WA. Discussed Lake Roosevelt White Sturgeon recovery initiative including new U.S. research efforts regarding, health, success, and future considerations for hatchery raised sturgeon released into system.

Met with Forest Service staff in Priest Lake, and reviewed the Hughes Meadow restoration project in North Idaho. This included a site visit to Hughes Meadow. No grizzly bears or angry moose were encountered.

Attended the Lemhi County Weed Management Area annual meeting. Heard updates on AIS activities in our area and in the state. Learned about a new biocontrol for cheat grass, which Jody is trying out on her own property.

Provided Doug Nemeth an overview of programs coordinated out of Salmon, Idaho.

Met with partners on the Pollinator Pathway project.

Participated in the Salmon School Garden coordination process.

Worked with staff from the Columbia River FWCO and IDFG to get the most current Idaho lamprey data for the distribution database.

Worked with Salmon School Garden project to finalize design of the interactive mini putt putt holes that will be used for education and outreach. Themes are aquatic, pollinators, watershed health and ecosystems.

Completed FY17 personnel documents.

Worked on the FY16 NFPP project highlight for Regional Annual Highlights report. The project is Jensen Creek, the last remaining barrier in the McCoy Creek drainage which flows into the South Fork Snake River. McCoy Creek is a stronghold drainage for Yellowstone Cutthroat trout.

Fall Chinook Salmon Research Team

Completed the first version of the somatic energy use model that included riverine velocities estimated with a 2D model.

Completed the pre-spawning movement module of the somatic energy use model.

Ran the somatic energy use model to: (1) compare the simulated cumulative temperature exposures (1°C above 0°C for 1 day = 1 cumulative temperature unit) between Bonneville Dam and McNary Dam, and the simulated expended useable energy (cumulative %) upon arrival in the forebay of McNary Dam, between fish that successfully migrated from Bonneville Dam forebay to Lower Granite Dam forebay, and fish that were not successful migrants through that stretch of impounded habitat; (2) simulate survival from Lower Granite Dam forebay to spawning site selection and the completion of spawning; (3) compare the Lower Granite Dam passage dates, simulated cumulative temperature exposures, and simulated expended useable energy content (cumulative %) upon arrival in the forebay of Lower Granite Dam between fish that were classified as successful or unsuccessful spawners by the model; and (4) compare simulated somatic energy

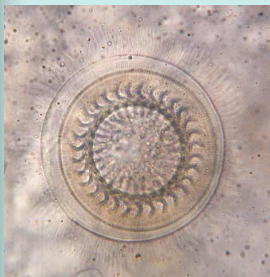
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Credit: fishmedsonline.com

Trichodina

Heavy external *Trichodina* were observed and a formalin treatment was recommended for all ponds with fish that were flashing.



Credit: fishmedsonline.com

Trichodina

Flashing increased in System 3. Upon inspection light to moderate levels of external parasites *Gyrodactylus* and *Trichodina* were found.



Credit: FishPathogens.net

Gyrodactylus

Fall Chinook Salmon Research Team

(Continued from page 6)

passage, reservoir passage, and pre-spawning movement and spawning events for fish classified as successful spawners.

Participated in adaptive management coordination calls with the USGS and NOAA.

Began to coordinate with NOAA staff to explore a climate change module for the somatic energy use model for evaluating the effect of climate change on survival through spawning as well as spawn timing. Climate

change is a large topic in the Adaptive Management Implementation Plan.

Conducted deepwater redd searches in Hells Canyon in cooperation with the USGS and Idaho Power Company.

Provided assistance to the NPT during radiotelemetry tracking in Hells Canyon.

Idaho Fish Health Center - Blair

November 2016

Dworshak NFH

Steelhead juveniles: System 1 steelhead in burrows pond 9 were examined on Nov 2. Moderate levels of bacteria were seen in gills. A Chloramine T treatment was performed to control the bacterial gill disease.

System 2 steelhead in burrows pond 18 were examined on Nov. 10 due to a low level increase in mortality. Due to cell necrosis seen on kidney imprints, the pond was suspect for IHNV virus and recommendations were made to isolate the pond as much as possible. This pond was later confirmed positive for IHNV by cell culture. BP 23 was examined 23 November after a report of increased flashing. Heavy external *Trichodina* were observed and a formalin treatment was recommended for all ponds with fish that were flashing.

In November, flashing increased in System 3. Upon inspection light to moderate levels of external parasites *Gyrodactylus* and *Trichodina* were found. A formalin treatment was recommended for these ponds.

Spring Chinook juveniles: Dworshak spring Chinook were examined on Nov. 29. Fish in one burrows pond with recent low level increase in mortality were collected. Mortality appeared to be due to smaller drop-out sized fish while the general population in the pond were seen to be doing well. Kidneys were sampled for Bacterial Kidney Disease monitoring by the ELISA test. A pre-transfer inspection was conducted 8 November 2016 in the case an emergency transfer of fish off station was needed due to electrical issues at Dworshak.

Coho Adults: The last spawn of the season was conducted November 2. These fish were sampled in preparation for transfer to the Eagle Creek National Fish Hatchery.

Coho juveniles: Monthly monitoring was conducted on 23 November 2016. Fish looked good and there were no recommendations. A pre-transfer inspection was conducted 8 November 2016 in the case an emergency transfer of fish off station was needed due to electrical issues at Dworshak.

Kooskia NFH

Spring Chinook juveniles: A routine monitoring exam for Kooskia spring Chinook was performed on Nov. 17. Fish appeared healthy at this time. Kidneys were sampled for Bacterial Kidney Disease monitoring by the ELISA test.

Nez Perce Tribal Hatchery

Fall Chinook Adults: Samples were collected from adults for Spawning Takes 3, 4, 5 and 6 during the month of Nov. On Nov 4th, 155 females were injected with Salmon Gonadotropin Releasing Hormone analogue (sGnRHa) to assist with ripening.

Kooskia National Fish Hatchery - Hills

This activity report is implemented by the Tribal Fish Hatchery Manager, Kent Hills. All information in this report was collected and or performed by the hatchery staff during the preceding month.

Under SRBA and the Clearwater Annual Operating Plan, the Tribe, Service and Idaho Fish & Game have agreed to implement other fish production actions related to KNFH mitigation. Reports will include additional information about other species reared, processed and released in relation to KNFH operations.

Kooskia Chinook Brood Year 2015

There are 693,101 fish on station; this month the mortality 97. They have been on creek water at 37 to 49 degrees with an average of 40.9 degrees. The fish are an average of 4.79 inches (122mm) long they have gained 3,117 pounds for the month and consumed 2,374 pounds of fish feed. The Idaho Fish Health Center personnel were out and performed the November health evaluation. The results included one fish with *Ichthyophthirius* that was seen on the skin, low levels of *Sanguinicola* found on the gills and all fish had feed in their stomachs.

Kooskia Chinook Brood Year 2016

We currently have, after picking, 782,512 good eggs/sac fry in the hatchery stacks. Eggs in take 1 are hatched and take 2 is starting to hatch. The egg incubation chiller operated without problems the whole month with temperatures between 39 ° to 42°F.

Kooskia Adult Trap Operations:

The trap is still open there were 573 adult Coho were trapped, 239 were females and 252 were males, and 82 jacks. A total of 10 jacks were killed for CWT and the all the rest of these fish were transported to be out-planted in the Clearwater Tributaries for natural spawning. The trap was closed on the 29th.

Maintenance & Operations:

Nov 01: A total of 241 were removed from the trap.

Nov 02: Kayla went to Dworshak to assist in spawning Coho.

Nov 03: Take 3 first pick for bad eggs.

Nov 06: Construction is continuing on the circular tanks, the fiberglass is being installed.

Nov 08: A total of 187 Coho were removed from the trap.

Nov 10: Take 2 second pick for bad eggs.

Nov 11: Hatchery Closed Veterans Day.

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Credit: KNFH

Construction is continuing on the circular tanks at Kooskia National Fish Hatchery.



Credit: KNFH

Fiberglass being installed on the circular tanks at Kooskia National Fish Hatchery.

Kooskia NFH - Hills

(Continued from page 8)

Maintenance & Operations (continued):

- Nov 12:** Shocked Take 5.
- Nov 13:** Enumerated Take 5, 26,786 live eggs, 2,268 bad eggs
- Nov 14:** Received two pallets of 2.0 Bio-Vita fish feed. Take 1 is starting to hatch with the temperature units at 868 and the last formalin treatment on take 1 was on November 5. 1 pallet of 2.0 Bio-Olympic fish feed was delivered to DW to replace feed borrowed last month.
- Nov 15:** A total of 83 Coho were removed from the trap there were 30 females, 31 males and 15 jacks were out planted, 7 were killed for tags.
- Nov 16:** Electrician changed the main circuit breaker to the Bio-Filter which also is the power for the incubation chiller and with take 1 hatching we made sure it still had a water flow with a pump.
- Nov 17:** The Idaho Fish Health Center personnel were out and performed the November health evaluation. The results included there were signs of *Ich* that was seen on the skin of one fish, low levels of *Sanguinicola* found on the gills and all fish had feed in their stomachs.
- Nov 18:** Take 3 second pick and take 5 first pick for bad eggs.
- Nov 22:** Take 1 is hatching, began cleaning shells from the trays.
- Nov 23/24:** Hatchery closed for Thanksgiving Holiday. Coho personnel removed 62 fish from the trap.
- Nov 29:** The trap was closed.

Kooskia NFH Training and Conferences:

- Nov 03:** Regional Hatchery phone in meeting.
- Nov 07:** Meeting in Lapwai for the Coho Tank Construction.
- Nov 21:** Regional Hatchery phone in meeting.



Information and Education

Dworshak - Jill Olson

Facebook: Reach - 975 ; Engagements - 46

Website: Page Loads - 19 Unique - 14 ; First Time - 14; Returning - 0

Visitors: We received 24 visitors from five states.

Tours: One tour was provided by Becky Johnson for three adults from the Clark Fork Coalition.

Outreach: Two presentations were given to the Early Childhood Development Program by Aidan Frye on Nov. 17. Aidan took several eye-eggs to show the wide-eyed youngsters. There were 31 children and 11 adults present.

Volunteer Hours: There were no volunteer hours recorded during the month of November.

Kooskia - Kent Hills

Visitors: There were 105 visitors to the hatchery during this month; this figure is compiled by staff. With the weather turning cold, the visitors have slowed.

Staff List



Dworshak Fisheries Complex Management:

Steve Rodgers, Dworshak Fisheries Complex Manager

Mark Drobish, Dworshak NFH Manager

Adam Izbicki (FWS) & Jeremy Sommer (NPT)
Dworshak NFH Assistant Hatchery Managers

Mike Tuell, SRBA Coordinator

Scott Koehler, Dworshak NFH Maintenance Supervisor

Doug Nemeth, Project Leader, Idaho Fish and Wildlife
Conservation Office

Mike Faler, Aquatic Conservation Lead

Dr. William Conner, Fall Chinook Research Lead

VACANT- Fish Production M&E Lead

Kent Hills, Kooskia NFH Manager

Gerry Fogelman, Kooskia NFH Maintenance Supervisor

Dworshak NFH Production:

Angela Feldmann, Tom Tighe, Rob Bohn, Wayne Hamilton, Mike Bisbee, Tui Moliga, Steve Coomer, Carter Lopez, Jayden Hudson, Steve Jeffers, Jayson Thompson, Aidan Frye, Levi Carson

Administration: Heather Leopard- Administrative Officer, Brian Devlin- Budget Technician

Dworshak NFH Maintenance:

Terry Weeks, Rick King, Rob Kellar, James Oatman, James Paddelty, Melissa Wright, Kurt McCorkle

Idaho Fish and Wildlife Conservation Office:

Ray Jones, Aaron Garcia, Frank Mullins, Jody Brostrom, Chris Griffith

Complex Information and Education: Jill Olson

Kooskia NFH: Kenny Simpson, Kayla Warden